

gizmo

THE TETRA SOCIETY OF NORTH AMERICA: CUSTOM ASSISTIVE DEVICES

Cool Tetra device heats things up at the rink

REGINA: Curler Terry Hart has literally got a grip on his game this winter!

A special stabilizer bar, attached to the front of his wheelchair, gives him the stability that was missing previously when delivering rocks.

The stabilizer is a length of three-quarter-inch household electrical conduit pipe, bent to shape, and with a grip added. Hart holds the bar with his left hand while delivering rocks with his right.

Curling has been a lifelong passion for Hart, 51. His earliest memories include him riding rocks pushed by his father.

Hart became a quadriplegic in a 1981 tobogganing accident. Although he subsequently played wheelchair rugby for 15 years, a return to the curling ice seemed unlikely without a wheelchair curling league in Regina.

However, a trip to the 2008 Wheelchair Curling Championships in Winnipeg, inspired him. "I saw people I used to play wheelchair rugby against, and we said we would come back to Regina and get a team together."

There is still no wheelchair curling team in the city, but Hart plays in an able-bodied league out of the Caledonian Curling Club, where his team is putting up a winning record this year.

Hart credits his success this season, in part, to this curling stabilizer, created by Regina Tetra volunteers Brett Willis and Gerry Wurtak. It was directly inspired by a Tetra device created by the Vernon, BC Tetra chapter for 2010 Paralympic curling gold medalist Sonja Gaudet.

"It was Sonja's device I saw, and I asked Tetra here to duplicate it. As a quad, I don't have tummy muscles, so I need the stabilizer to hold on to to keep my body upright.

"It gives me additional power because as I'm delivering the stone I'm pushing forward

with my right hand, and this allows me to hold on with my left. I'm working like a piston — as I'm pushing I'm also pulling.

"In my first couple of years [wheelchair] curling I did not have this; I had draw but not takeout. With it, my game has improved dramatically. It's probably doubled from where I was. Before, if I made 50 per cent of my shots, that was a good game. This year I'm at 85 per cent. That's making 12 out of 14 shots — that's high caliber."

Wurtak watched Hart playing to figure out the range of motion: how he would attach a five-foot rod to a rock, moves it a little to prevent sticking, before pushing it forward to make his throw. Moving his right arm forward like this would push his body back in the chair ("When you punch forwards you have to go backwards," observed Wurtak.)

Hart, who has good arm strength but no dexterity, uses a mitt designed by a Regina



CURLING IRON: TERRY HART PUTTING HIS TETRA-DESIGNED CURLING STABILIZER BAR THROUGH ITS PACES ON ICE.



occupational therapist that holds his hand as a fist. He slips the glove over the top of the stabilizer post. Wurtak attached a bike handlebar grip so Hart's hand would not slide up or down.

Wurtak and Regina coordinator Terri Sleeva went to watch Hart putting his curling stabilizer into action at the rink. "I had tears in my eyes," she said. "He looked professional — he's a darned good curler."

Hart added: "I could not play without the curling stabilizer now. When I meet anyone else in my situation I always say you have to get one of these made."

The Tetra Society of North America is celebrating 25 years of innovation.

Formed in 1987, Tetra recruits volunteer engineers and technicians to devise custom assistive devices for people with disabilities — each one a unique invention that transforms one aspect of a recipient's life.

Tetra was formed by Sam Sullivan, who became quadriplegic after he broke his neck in a 1979 skiing accident. He determined that talented vol-

unteers can find ways to enable everyday activities like dressing, eating and opening the front door.

Looking back at the growth of Tetra, Sullivan takes credit for nothing more than bringing compassionate, highly skilled individuals together with people that have a need. "We do not provide the energy, we release it," he said. "There's so much energy in a community, people wanting to do something for other people."



Celebrating quality of life for 25 years.

TURN TO PAGE 3 TO SEE HOW TETRA IS SHAPING UP TO FACE THE NEXT 25 YEARS.

Student grant takes Tetra back to school

GTA: The Tetra Society has received a grant to create groups to make assistive devices for students on nine post-secondary campuses.

It comes from the Ontario Trillium Foundation to ensure continuation and expansion of the innovative Tetra “Youth in Transition” project, which in 2008 saw campus Tetra clubs formed in four Canadian cities — Vancouver, Calgary, Toronto and St John’s — to devise and create assistive devices for students high school age and upwards.

These Tetra clubs showed that custom assistive devices open the door to post-secondary education for high school students with disabilities and free up a student’s time and allow them to focus more clearly on studies.

The GTA project will stretch over four years and involves colleges with hundreds of thousands students, said Tetra’s Ontario coordinator Glenn Barnes, who notes that just reaching one per cent of students with disabilities will result in a significant number of life-changing Tetra projects.

“We will be creating a bridge between Tetra, faculty departments and students,” he said. “The bigger schools have engineering departments, and we’ll be going there first. We will also be working with people with technical skills like drafting or industrial design, and probably some welding, and hopefully people with skills like marketing or website development or expertise fundraising.

“Every school is different, and each Tetra club will be structured differently. The smaller schools we are looking at have 10,000 students, and the largest has 90,000.”

Although the project is in its infancy, Barnes is already dealing with a request from a Humber College student who wants a device built on the back of his wheelchair that can stash his notes and books out of the way, but swings forward into easy reach.



“Every time I went out with the prototype people asked me where I got it.”

RAISING McCAIN: HEATHER McCAIN PUTTING HER UPRIGHT TETRA WALKER THROUGH ITS PACES.

WALK TALL WITH TETRA

VANCOUVER: A re-designed walker and a stash-away wheelchair tray are enabling a Vancouver woman to undertake two separate high-level road trips later this year.

Heather McCain, 32, has six different types of arthritis, stemming from damage to her joints caused by a rare genetic condition, Ehlers-Danlos Syndrome. Although she uses a wheelchair, she can walk short distances with support.

As a result, she approached Tetra to re-design a walker to give her arm support that enables her to stand upright.

“I’ve started walking again,” she said. “People see me in a wheelchair and think my disability relates to my legs, but really it’s in my arms and collarbones.”

“With a typical walker you hold on and lean over. You don’t stand straight. I also feel every line and bump on the sidewalk. The pain is intense. I could lose the use of my arms through arthritis in my collarbones.”

Tetra volunteer Peter Newel came up with a wooden prototype earlier in the year which makes the walker taller, while not blocking the seat or making it any wider, which would cause clearance issues. By mid-February it was being turned into an all-metal, finished product.

It’s a straight-forward adaptation, in which panels are held around six inches above the hand grips to provide the arm support McCain requires.

“Every time I went out with the prototype people asked me where I got it. I was talking to a lady who told me her dad uses a walker but would not go out of the house because he did not want to have to lower his head and be unable to make eye contact

“I have seen standing walkers, but they didn’t have the seat, which is a vital component. Another thing is that your arms get quite tired if you are gripping handles, but if your arms are raised it’s easier to hold on.

“I think it’s marketable. I went out one evening and five people asked where they could buy one. People don’t like walkers because they have to be hunched over. They want to use mobility devices with dignity and be able to interact with the people around them.”

This Tetra project will enable McCain to follow up on an invitation to work with communities in Hazelton and Smithers in Northwest British Columbia that are interested in her non-profit Citizens for Accessible Neighbourhoods. She will make the road trip in mid-April.

It will be followed in June by a trip to Quebec — via a stop-over in Atlantic Canada — to take part in the Governor General’s Canadian Leadership Conference, an intense, two-week event that brings together business and community leaders. It includes eight days’ fieldwork, meeting regional leaders in various parts of the country.

“I’m taking my manual chair, but the thing about the walker is I can drive — I just throw it onto the back seat. I can go door to door. There are certain things that would not be accessible for a wheelchair, and it’s great to have the option to have both.”

Tetra volunteers will also be re-creating an innovative folding lap tray in time for her conferences. Devised in 2008 for McCain’s powerchair, principally to support her arms, it breaks open to stash away at the sides of her chair when not in use.



TORONTO TETRA CLUB STUDENTS TOGETHER IN 2009 TO HOST AN ASSISTIVE DEVICE FORUM.

Silver Anniversary is time to reflect

Over the past 25 years, Tetra’s volunteer engineers and technicians have overcome a constant succession of seemingly unsolvable challenges.

But what of the next quarter century? Here are some ways Tetra chapters across North America are innovating to keep up with the changing times:



STUDENTS FROM MEMORIAL UNIVERSITY, LED BY PROFESSOR JAMES YANG, WORKING ON A TETRA PROJECT.

Calgary chapter wanted to bring people with disabilities, health practitioners and volunteer engineers together for dialogue — and hit on the idea of hosting a symposium.

Client-turned-volunteer Brad Clements, a C5-6 quadriplegic, has seen things from all sides. He knows only too well that health professionals and people with disabilities need to be informed of what’s possible.

Their first symposium “to facilitate interaction between everyone” was held in 2010, and the most recent in late February at Alberta Foothills Hospital.

“The symposium generated 43 requests for projects. Our concern was everybody would be heard, no matter what they had to say.”



Tetra is going back to school to reach the leaders of tomorrow.

It all began with a 2007 Vancouver pilot project which found gaps in both the support system and students’ awareness of adaptive devices, and subsequently rolled out across Canada as the “Youth in Transition” project. (See Page 2.)

At the same time, engineering professors are approaching Tetra asking for real world challenges to put to their students.

Dr. Leonard Lye, associate dean of the Faculty of Engineering and Applied Science at Memorial University of St. John’s, Newfoundland, who has been running the St. John’s Tetra chapter since 1996 — with students tackling appropriate projects. His paper, *Incorporating Real-Life Open-Ended Design Projects in a First Year Design Course*, outlined the process to the Canadian Engineering Education Association Conference in St. John’s, last June.

“It’s difficult for a prof to come up with a project for students that’s realistic,” said Dr. Lye. “Tetra projects are ideal. All Tetra projects are open-ended because no-one knows what the solution is beforehand. The students are working on a real problem.”

Back in June 2009, students volunteering with Tetra in Toronto organized an arranged an interactive assistive device forum. More than 20 students worked on the event, which discussed assistive technology needs.



High-tech devices offer communication and entertainment opportunities to people with disabilities — although the trend towards miniaturization can prove to be a barrier.

Tetra’s low-tech, custom devices make iPads, iPods, Kobo and Kindle readers, and good old fashioned cell phones more accessible.

Caspar Ryan, 28, of Surrey, BC finds his wrists and elbows are not flexible enough to

hold an iPad comfortably. His joints have a very restricted range of motion, as his body did not fully accept a lifesaving childhood bone marrow transplant.

Tetra volunteers created a wood-and-metal over-the-shoulder iPad holder that Ryan uses everywhere.

“There’s a future for these kind of projects,” he said. “Tetra makes a lot of things like cup-holders, and this is the same idea — an item to manually hold some kind of device.



CALGARY VOLUNTEERS’ WORKSHOP.

Tetra chapters in both Vancouver and Calgary are developing fully equipped workshops as resources for volunteers and clients.

Calgary volunteers are currently putting the finishing touches to a 900-square-foot workspace, equipped for metal and plastic fabrication, welding and woodwork.

Vancouver’s 620-square-foot, fully accessible workshop opened June 2010, and volunteers offer classes to anyone with a disability interested in producing craft projects.

“We encourage people to do whatever they can physically do,” explained Tetra volunteer George Shipley. “We are there to advise and inspire — but mainly to guarantee safety.”



TETRA ROUND-UP



BIKE TO THE FUTURE

WHEELS OF FORTUNE: TETRA VERNON'S RECUMBENT TRIKE MODIFICATIONS.

VERNON: An outdoor access group asked Tetra to modify a recumbent tandem trike so they could offer cycling excursions to people with a wide range of disabilities.

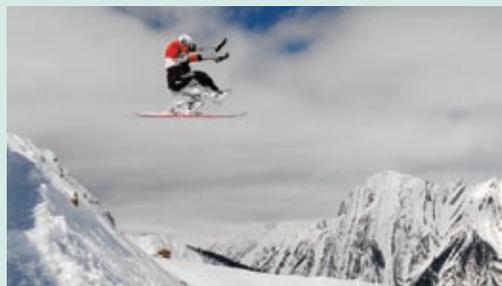
Community Recreation Initiatives Society (CRIS) approached Tetra's Vernon chapter for the modification. Their tandem trikes are stable and, being recumbent, offer seating support to riders with disabilities. CRIS's main concern was riders getting their legs tangled in the pedals and chain, so they asked for adjustable footrests and ankle-and-knee supports.

The challenge fell to volunteer Randy Schellenberg, who realized it was possible to fabricate modifications that could be unclipped and slid out of the way when not required, to give CRIS maximum flexibility.

"The knee supports clamp on with brackets, and are adjustable for height and angle, that go around the knee," he explained. "The foot rests adjust in increments forward and back. When these aren't in use they swing out of the way."

Another recent Schellenberg project played a modest part in a dramatic stunt, when paraplegic skier Josh Dueck became the first person to perform a 360-degree back flip in a sit-ski in Whistler in early February.

Schellenberg fabricated the bindings that hold the ski to the seat as those made for regular skis aren't tough enough.



Abbotsford/Mission, BC
John Connor
info@tetrasociety.org
604-820-0568

Armstrong, BC
Gary Arbuckle
arbuckle@sunwave.net
250-546-6449

Cranbrook/ East Kootenay, BC
Russ Kinghorn
Russ.Kinghorn@kinghornsystems.com
250-426-2158

Creston, BC
Andre Hebert
kayaker2@telus.net
250-866-5518

Fort St. John, BC
Perry Leonfellner
leonfellner@shaw.ca
250-264-2192

Kamloops, BC
Ralph Adams
tetrakam@telus.net
250-828-0558

Kelowna, BC
Neil Wyper
wyper@pushormitchell.com
250-869-1193

Nanaimo, BC
Deanna Olson
ddolson@shaw.ca
250-585-8171

Prince George, BC
Theresa Kile
tetrapp@gmail.com
250-596-8371

Prince Rupert, BC
Contact head office
info@tetrasociety.org
1-877-688-8762

Salt Spring Island, BC
Derek Emmerson
demmerson@shaw.ca
250-537-9351

Trail/Castlegar, BC
Jim Rees
jmrees@shaw.ca
250-364-1878

Vancouver, BC
Pat Tweedie
ptweedie@tetrasociety.org
1-877-688-8762

Vernon, BC
Contact head office
info@tetrasociety.org
1-877-688-8762

Victoria, BC
Pat Tweedie
ptweedie@tetrasociety.org
1-877-688-8762

Whistler, BC
Hugh Tollett
info@whistlerforthe
disabled.com
1-877-688-8762

Calgary, AB
Stephanie Coupal
tetracalg@yahoo.com
403-803-9214

Edmonton, AB
Mike Otto
mike@mikeotto.ca
780-977-6453

Lethbridge, AB
Chris Schamber
hatesnow@quaddesign.ca
403-381-7450

Medicine Hat, AB
Maxine Tindall
tinker046@hotmail.com
403-488-1322

Red Deer, AB
Jim Stone
jstone05@telus.net
403-438-0172

Regina, SK
Terri Sleeva
tetraregina@sasktel.net
306-545-7378

Saskatoon, SK
Contact head office
info@tetrasociety.org
1-877-688-8762

Winnipeg, MB
Contact head office
info@tetrasociety.org
1-877-688-8762

Guelph, ON
Leanne Conrad
tetraguelph@gmail.com
1-877-688-8762

Hamilton-Halton, ON
Sylvia Baliko
sbaliko1@sympatico.ca
905-319-2843

Kingston, ON
Contact head office
info@tetrasociety.org
1-877-688-8762

London, ON
Wilma McIntyre
tetralondon@rogers.com
519-453-5005

Ottawa, ON
Sarah O'Connor
sarahaconnor@gmail.com
613-262-3396

Peel Region, ON
Matthew Fleet
Matthew.fleet@sympatico.ca
905-814-8789

Metro Toronto, ON
Susan Coates
susan.a.coates@gmail.com
416-766-2278

York Region, ON
Anu Missar
tetrayork@hotmail.com
647-880-1028

Trenton, ON
Gary Richard
garyrichard50@hotmail.com
613-398-0505

Windsor, ON
Sharon Lumsden
windsortetra@sympatico.ca
519-735-8763

Montréal, QC
Contact head office
info@tetrasociety.org
1-877-688-8762

Fredericton, NB
Christine Plourde
cplourde@craworld.com
506-462-7662

Antigonish, NS
Cyril MacGillivray
Cyril.macgillivray@strait.
ednet.ns.ca
902-870-3054

Halifax, NS
Kevin Murphy
tetrahalifax@ns.sympatico.ca
902-860-1995

St. Johns, NL
Dr. Leonard Lye
llye@mun.ca
709-753-0733

Los Angeles, CA
Dr. Sam Landsberger
slandsb@exchange.calstatela.edu
1-877-688-8762

San Diego, CA
Contact head office
info@tetrasociety.org
1-877-688-8762

San Francisco, CA
Contact head office
info@tetrasociety.org
1-877-688-8762

Salt Lake City, UT
Kent Remund
kremund@gmail.com
801-448-6107

Cincinnati, OH
Christopher Kubik
coordinator@may-we-help.org
513-248-4045

Columbus, OH
Russ Weir
weir.russ.linda@att.net
1-877-688-8762

TETRA SOCIETY OF NORTH AMERICA

Have an idea for a project? Want to know what's possible? Want to overcome a barrier?

Here's how to reach us...

T: 604-688-6464 / 1-877-688-8762 (toll-free)

F: 604-688-6463

E: info@tetrasociety.org

www.TetraSociety.org



Tetra Society
of North America